

1. A method of transmitting data to a wireless mobile device, said method comprising:

determining at least one of speed, location or direction information

5 for a mobile device;

using said at least one of speed, location or direction information as a parameter to control a data rate for signal transmission from one or more base stations of a wireless system servicing said mobile device.

- 10 2. The method of claim 1, wherein said at least one of speed, location or direction information is used to determine which one of said base stations should transmit to said mobile device.

- 15 3. The method of claim 2 wherein said at least one of speed, location or direction information is used to determine what signal power a base station should use in its transmissions to said mobile device.

4. The method of claim 3, wherein said transmission signal power is at least a required signal power to transmit a signal to said mobile device.

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5. The method of claim 4, wherein said at least one of speed, location or direction information is used to control the transmission of a first base station toward which said mobile station is moving by delaying transmission of data

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from said first base station to said mobile device until said mobile device is located close enough to said base station such that a required signal power for transmission to said mobile device is less than or equal to a threshold signal power.

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6. The method claim 5 further comprising transmitting data from said first base station to said mobile device at a first data rate using said required signal power and transmitting data at a second data rate using a signal power greater than said required signal power.

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7. A method of claim 6 further comprising increasing a rate of data transmission from said first data rate to said second data rate when said transmission signal power is greater than said required signal power.

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8. The method claim 6 further comprising transmitting data from said first base station to said mobile device at said second data rate when said mobile device is moving away from said first base station cell and toward a second base station which has allocated at least a predefined heavy load amount of its total RF signal power.

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9. A method of claim 1 further comprising controlling said base stations such that neighboring base stations use a soft handoff during a data transmission when said mobile device is in a handoff region and is entering a cell of a base

station having allocated not more than a predefined light load amount of the total RF signal power.

10. A method of claim 1 further comprising controlling said base stations such  
5 that neighboring base stations use a soft handoff during a data transmission when said mobile device is in a handoff region and a base station servicing said mobile device has allocated at least a predefined heavy load amount of its total RF signal power.

10 11. A method of claim 1 further comprising controlling said base stations such that neighboring base stations use a soft handoff during a data transmission when said mobile device is in a handoff region and a base station servicing said mobile device is more heavily loaded than a base station region to which said mobile device is moving.

15 12. A method of claim 1 further comprising delaying transmission of data to said mobile device when it is not in the process of receiving a data transmission and when a base station assigned to transmit to said mobile device has allocated at least a predefined heavy load amount of its total RF signal power  
20 and a neighboring base station has allocated not more than a predefined light load amount of the total RF signal power.

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13. The method of claim 12 further comprising providing a transmission by a neighboring base station to said mobile device when said mobile device is in a handoff region between said base stations.

14. The method of claim 1 further comprising providing transmission of data to said mobile device by a neighboring base station when said mobile device is in a handoff region between a base station transmitting to it and, said neighboring base station has allocated not more than a predefined light load amount of the total RF signal power.

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15. The method of claim 2 further comprising providing a transmission signal power greater than a required signal power from a base station to said mobile device when said mobile device is moving towards a known coverage hole.

15     16.     The method of claim 1 further comprising delaying a data transmission from  
a base station to said mobile device when said mobile device is moving  
towards a known coverage hole.

17. The method of claim 1 further comprising delaying transmission to said  
20 mobile device when the remaining maximum delay time for transmission to  
said mobile device is not less than a predefined multiple of a time interval for  
when said base station has allocated not more than a predefined light load  
amount of the total RF signal power.

18. The method of claim 1 further comprising providing a transmission signal to said mobile device when the remaining maximum delay time for transmission to said mobile device is less than a predefined multiple of a time interval for when said base station has allocated not more than a predefined light load amount of the total RF signal power.
19. The method of claim 1 comprising determining said speed and location information for said mobile device.
20. The method of claim 1 comprising using said speed and location information as a parameter to control said signal transmission from said one or more base stations of said wireless system servicing said mobile device.
21. The method of claim 1 comprising determining said location and direction information for said mobile device.
22. The method of claim 1 comprising using said location and direction information as a parameter to control said signal transmission from said one or more base stations of said wireless system servicing said mobile device.
23. The method of claim 1 comprising determining said speed and direction information for said mobile device.

24. The method of claim 1 comprising using said speed and direction information as a parameter to control said signal transmission from said one or more base stations of said wireless system servicing said mobile device.

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25. A method of transmitting data from a wireless mobile device to a base station, said method comprising:

determining at least one of speed, location or direction information for a mobile device;

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using said at least one of speed, location or direction information as a parameter to control a data rate for signal transmission to one or more base stations of a wireless system from said mobile device.

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26. The method of claim 25, wherein said at least one of speed, location or direction information is used to determine which one of said base stations should receive a transmission from said mobile device.

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27. The method of claim 26 wherein said at least one of speed, location or direction information is used to determine what signal power said mobile device should use in its transmissions to said one or more base stations.

28. The method of claim 27, wherein said transmission signal power is at least a required signal strength to transmit a signal to said one or more base stations.

29. The method of claim 28, wherein said at least one of speed, location or direction information is used to control the transmission to a first base station toward which said mobile station is moving by delaying transmission of data to said first base station from said mobile device until said mobile device is located close enough to said first base station such that a required signal power for transmission to said first base station is less than or equal to a threshold signal power.
30. The method claim 29 further comprising transmitting data to said first base station from said mobile device at a first data rate using said required signal power and transmitting data at a second data rate using a signal power greater than said required signal power.
31. A method of claim 30 further comprising increasing a rate of data transmission from said first data rate to said second data rate when said transmission signal power is greater than said required signal power.
32. The method claim 30 further comprising transmitting data to said first base station from said mobile device at said second data rate when said mobile device is moving away from said first base station cell and toward a second base station which has allocated at least a predefined heavy load amount of its total RF signal receiving capacity.

33. A method of claim 25 further comprising controlling said base stations such that neighboring base stations use a soft handoff during a data transmission when said mobile device is in a handoff region and is entering a cell of a base station having allocated not more than a predefined light load amount of the total RF signal receiving capacity.
34. A method of claim 25 further comprising controlling said base stations such that neighboring base stations use a soft handoff during a data transmission when said mobile device is in a handoff region and a base station servicing said mobile device has allocated at least a predefined heavy load amount of its total RF signal receiving capacity.
35. A method of claim 25 further comprising controlling said base stations such that neighboring base stations use a soft handoff during a data transmission when said mobile device is in a handoff region and a base station servicing said mobile device is more heavily loaded than a base station region to which said mobile device is moving.
36. A method of claim 25 further comprising delaying transmission of data when said mobile device is not in the process of sending a data transmission and when a base station assigned to receive said data transmission from said mobile device has allocated at least a predefined heavy load amount of its



total RF signal receiving capacity and a neighboring base station has allocated not more than a predefined light load amount of the total RF signal receiving capacity.

- 5 37. The method of claim 35 further comprising providing a transmission to a neighboring base station from said mobile device when said mobile device is in a handoff region between said base stations.
- 10 38. The method of claim 25 further comprising providing transmission of data from said mobile device to a neighboring base station when said mobile device is in a handoff region and said neighboring base station has allocated not more than a predefined light load amount of the total RF signal receiving capacity.
- 15 39. The method of claim 26 further comprising providing a transmission signal power greater than said required signal power to a base station from said mobile device when said mobile device is moving towards a known coverage hole.
- 20 40. The method of claim 25 further comprising delaying a data transmission to a base station from said mobile device when said mobile device is moving towards a known coverage hole.

41. The method of claim 25 further comprising delaying transmission from said mobile device when the remaining maximum delay time for transmission from said mobile device is not less than a predefined multiple of a time interval for when said base station has allocated not more than a predefined light load amount of the total RF signal receiving capacity.
42. The method of claim 25 further comprising providing a transmission signal from said mobile device when the remaining maximum delay time for transmission from said mobile device is less than a predefined multiple of a time interval for when said base station has allocated not more than a predefined light load amount of the total RF signal receiving capacity.
43. The method of claim 25 comprising determining said speed and location information for said mobile device.
44. The method of claim 25 comprising using said speed and location information as a parameter to control said signal transmission to said one or more base stations of said wireless system servicing said mobile device.
45. The method of claim 25 comprising determining said location and direction information for said mobile device.

46. The method of claim 25 comprising using said location and direction information as a parameter to control said signal transmission to said one or more base stations of said wireless system servicing said mobile device.
- 5 47. The method of claim 25 comprising determining said speed and direction information for said mobile device.
48. The method of claim 25 comprising using said speed and direction information as a parameter to control said signal transmission to said one or more base stations of said wireless system servicing said mobile device.
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